

MD. HASANUL KABIR

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PERSONAL DATA

Master's Student in Computer Science & Technology, Nanjing Normal University, China

Email: hasanul.kabir09@gmail.com

Nationality: Bangladeshi

RESEARCH INTERESTS

- Autonomous Systems, AI-based Automation, Intelligent Inspection Robots, Multi-point Navigation
- Deep Reinforcement Learning, Machine Learning, Computer Vision, Robotics Simulation

EDUCATION

M.Sc. in Computer Science & Technology <i>Nanjing Normal University</i>	2023 – 2026 (Expected)
B.Sc. in Computer Science & Technology <i>Henan Polytechnic University</i>	2017 – 2021 Jiaozuo, China — Grade: 85%

RESEARCH EXPERIENCE

Video-Based Obstacle Avoidance using Deep Reinforcement Learning <i>Nanjing Normal University</i>	2023 – Present
• Ongoing research on developing an intelligent obstacle avoidance framework for autonomous mobile robots using vision-based perception and deep reinforcement learning (DRL).	
• Integrated YOLO-based object detection for dynamic obstacle recognition and implemented DRL algorithms (DQN/PPO) for real-time navigation and decision-making.	
• Designed a simulation environment in ROS and Gazebo to evaluate navigation behavior under varying lighting, noise, and dynamic obstacle conditions.	
• Targets robust visual navigation by tightly coupling perception and control within an end-to-end DRL training pipeline.	
Air Quality Prediction Model <i>Nanjing Normal University</i>	2023
– This research addresses the challenge of air pollution forecasting by integrating multi-source environmental data through a deep learning framework.	
– Developed an Attention-Enhanced Spatio-Temporal Graph Convolutional Network (AE-STGCN) combining spatial-temporal attention with graph convolutional learning.	
– Unified air pollutant, meteorological, and POI datasets into a grid-based representation to improve prediction accuracy and interpretability.	
Consortium Research Center (CRC) <i>Dhaka, Bangladesh (Remote)</i>	Jul 2021 – Present
– Head of People (Jan 2024 – Present) – Coordinate research teams, manage R&D planning, and ensure workflow alignment between departments.	
– Junior Research Assistant (Jul 2021 – Dec 2023) – Conducted literature reviews, data collection, and grant preparation for robotics and automation research.	
– Supported project documentation and QA verification for experimental research outputs.	

PROJECTS

Bayesian Regression for Noisy Sensor Data	2024
<i>Personal Project (GitHub: github.com/hasanulkabir-md/bayesian-regression-sensors) Nanjing, China</i>	
– Implemented a Bayesian Linear Regression model in Python/PyMC to simulate and calibrate noisy sensor measurements.	
– Compared Bayesian inference with ordinary least squares (OLS) to estimate sensor bias and quantify predictive uncertainty in real-world-style data.	
– Visualized posterior distributions and credible intervals to demonstrate how Bayesian methods improve reliability of measurements for robotics/IoT applications.	

Kalman Filter for Motion Tracking	2024
<i>Personal Project (GitHub: github.com/hasanulkabir-md/kalman-filter-tracking) Nanjing, China</i>	
– Developed a 2D Kalman Filter to track a moving target under noisy position measurements using a constant-velocity motion model.	
– Implemented the full prediction–update loop (state transition, measurement model, and noise covariances) to estimate latent position and velocity.	
– Analyzed and visualized noisy vs. filtered trajectories, showing significant reduction in tracking error relevant to localization and sensor-fusion in autonomous systems.	

PUBLICATIONS

Multi-point Navigation Method for Intelligent Robots	2024
<i>Journal of Computing</i>	<i>Co-author</i>
Credit Approval Decision using ML Algorithms	2022
<i>IEEE ICRITO Conference</i>	<i>Co-author</i>

TECHNICAL SKILLS

Programming: Python (primary), MATLAB, Java, SQL, Bash, C/C++ (basic)

Testing & QA Tools: PyTest, Postman, Selenium, Playwright, JMeter, Locust, Jenkins

Automation & Dev Tools: Git, Docker, Linux (Ubuntu), VS Code, MySQL

Concepts: REST API Testing, Regression Testing, Performance & Load Testing, SDLC, Test Case Design, Bug Tracking (JIRA)

AI & Research: Reinforcement Learning (DQN/PPO), Kinematics, Path Planning (A*, RRT, D*), YOLO Object Detection, ROS, Figma, Gazebo Simulation

PARTICIPATION IN WORKSHOPS & TRAINING

CV and Career Writing Workshop	2023
<i>Voluntary Participant</i>	<i>Nanjing Normal University</i>
Youth for Civic Leadership	2022
<i>JAAGO Foundation, Bangladesh</i>	<i>Training on civic engagement, leadership, and social responsibility</i>
Joyful Reading Jiangsu	2024
<i>Videography Category Participant</i>	<i>Jiangsu, China</i>

SOFT SKILLS & CERTIFICATION COURSES

Introduction to Programming	2020
<i>Coursera Online Course</i>	
Computer Vision Basics	2020
<i>Coursera Online Course</i>	
AWS Machine Learning Foundations	2021
<i>Amazon Web Services</i>	
Java Basics & Programming Fundamentals	2021
<i>Coursera / Independent Study</i>	
Cyber Security Testing	2021
<i>Arena Web Security, Bangladesh</i>	

AWARDS & ACHIEVEMENTS

Provincial Scholarship (2×)	2019, 2020
<i>China Education Ministry</i>	<i>Henan Province</i>
#MyChinaStory Writing Competition – Best Participant	2020
<i>Embassy of the People's Republic of China in Bangladesh</i>	
Youth for Civic Leadership Award	2022
<i>JAAGO Foundation, Bangladesh</i>	
Best Reader Award	2012
<i>SEQAEP, Bangladesh Education Ministry</i>	

COMMUNITY INVOLVEMENT

Local Youth Leader	2022
<i>JAAGO Foundation</i>	<i>Organized community events and promoted youth engagement in civic education.</i>
Volunteer, Yuntai Maker Space	2018 – 2021
<i>Henan Polytechnic University</i>	<i>Supported student innovation projects and public events.</i>

EXTRACURRICULAR ACTIVITIES

- Photography & Visual Storytelling** — Participated in local and university-level contests; captured cultural and creative moments for social and academic campaigns.
- Videography & Editing** — Produced short storytelling videos, including submissions for “Joyful Journey to Literary Jiangsu 2024.”
- Design & Branding** — Created digital posters, packaging labels, and branding visuals for community projects and small businesses.
- Creative Writing & Blogging** — Awarded in the “#MyChinaStory” writing competition by the Chinese Embassy; publish reflective and educational blogs on Medium.
- Youth Leadership & Volunteering** — Trained under JAAGO Foundation’s “Youth for Civic” program and participated in local community initiatives.
- Portfolio Links:** Explore my creative work on Behance, YouTube, , and Medium.

LANGUAGES

English (Professional) — Chinese (Elementary) — Bengali (Native)